

REMARKS

This communication responds to the Office Action dated June 24, 2011. No claims are amended. No claims are canceled. No claims are added. As a result, claims 1-37 remain pending in this Application.

The Rejection of Claims Under § 103

Claims 1, 2, 7, 11, 12, 16, 20, 23, 26, 27, 29, 31, 32, and 35 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious in view of Ling et al. (U.S. Patent No. 6,771,706: hereinafter "Ling") and Fujii et al. (U.S. Publication No. 2004/0062302: hereinafter "Fujii"). Claims 3-6, 8, 9, 13-15, 17, 18, 21, 22, 24, 25, 28, 30, 33, and 34 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious in view of Ling, Fujii and Whitehill et al. (U.S. Publication No. 2002/0191573: hereinafter "Whitehill"). Claims 10 and 19 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious in view of Ling, Fujii and Schramm (U.S. Publication No. 2002/0110138). Claims 36 and 37 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious in view of Ling, Fujii and Hammerschmidt (U.S. Publication No. 2002/0110138). Since a proper *prima facie* case of obviousness has not been established in each instance, these rejections are respectfully traversed.

The Examiner has the burden under 35 U.S.C. § 103 to establish a *prima facie* case of obviousness. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). To do that the Examiner must show that some objective teaching in the prior art or some knowledge generally available to one of ordinary skill in the art would lead an individual to combine the relevant teaching of the references. *Id.*

The *Fine* court stated that:

Obviousness is tested by "what the combined teaching of the references would have suggested to those of ordinary skill in the art." *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 878 (CCPA 1981)). But it "cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination." *ACS Hosp. Sys.*, 732 F.2d at 1577, 221 USPQ at 933. And "teachings of references can be combined *only* if there is some suggestion or

incentive to do so." *Id.* (emphasis in original).

The M.P.E.P. adopts this line of reasoning, stating that:

In order for the Examiner to establish a *prima facie* case of obviousness, three base criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *M.P.E.P.* § 2142 (citing *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)).

Independent claim 1 recites, in pertinent part, "receiving, at the transmitter from the receiver, the second number of training symbols without requiring channel state information (CSI) feedback from the receiver." As noted in independent claim 1, the second number of training symbols are provided by the receiver in response to a first number of training symbols (corresponding to a first number of communication chains) provided by the transmitter. Elements similar to the above-quoted elements are recited in independent claims 11, 20, 23, 26, and 31. None of the cited documents, Ling, Fujii, Whitehill, Schramm or Hammerschmidt, alone or in combination teach or suggest these elements, as recited in independent claims 1, 11, 20, 23, 26, and 31.

It is noted that the Office did not address how the combination of Ling and Fujii (and/or Whitehill, Schramm or Hammerschmidt) operates to provide the elements of independent claim 1, namely, "receiving, at the transmitter from the receiver, the second number of training symbols." A careful reading of Ling and Fujii reveals that this aspect of the claim is not addressed.

The Office relies on the (first) "system 110" and the "second system 150" in Ling as equivalent to the transmitter and receiver recited in independent claim 1. *See* Office Action pages. 2-3, paragraph 3; *see also* Ling at FIGS. 1, 3 & 5 and col. 3, lines 6-20. However, there is nothing in Ling that shows that the second system 150 in Ling generates another set of training

symbols responsive to receiving a set of training symbols from the (first) system 110, much less that the (first) system 110 receives another set of training symbols, if one even exists, from the second system 150, where the set of training symbols are generated at the second system 150 responsive to receiving the set of training symbols from the (first) system 110.

In addition, as admitted by the Office at p. 3, lines 3-4 of the Office Action, Ling does not teach or suggest “without requiring channel state information (CSI).” Therefore, Ling fails to teach or suggest “receiving, at the transmitter from the receiver, the second number of training symbols without requiring channel state information (CSI) feedback from the receiver,” as recited in independent claim 1.

The deficiencies of Ling are not remedied by Fujii, alone or in combination with Ling (and/or Whitehill, Schramm or Hammerschmidt). Fujii discusses generating a “transmit symbol stream ($s(k)$)” using a “symbol mapping part” 13 in a “transmitter” 10, and mixing the transmit symbol stream with a training symbol sequence ($s_{tr}(k)$) generated by a “training symbol sequence generator” 14 in the transmitter to transmit a resulting mixed signal to a “receiver” 20. *See* Fujii at FIG. 2 and paragraph [0007]. However, there is nothing in Fujii that shows that the transmitter in Fujii receives another training symbol sequence, if one even exists, from the receiver, where the other training symbol sequence is generated by the receiver responsive to receiving the mixed signal from the transmitter. Also, there is nothing in Fujii that shows that the transmitter in Fujii generates the training symbol sequence responsive to receiving a training symbol sequence from the receiver.

In addition, Fujii is silent with respect to channel state information (CSI) feedback, much less discussing whether or not channel state information (CSI) feedback is required for the transmitter in Fujii to receive a training symbol sequence, if one even exists, generated by and sent from the receiver. Therefore, Fujii also fails to teach or suggest “receiving, at the transmitter from the receiver, the second number of training symbols without requiring channel state information (CSI) feedback from the receiver,” as recited in independent claim 1. Nowhere is any such teaching or suggestion found within the bounds of Ling, Fujii, Whitehill, Schramm or Hammerschmidt, alone or in combination

These arguments supporting the patentability of claim 1 equally apply to independent claims 11, 20, 23, 26, and 31, which each recite similar elements.

For at least the reasons stated above, none of the cited documents, Ling, Fujii, Whitehill, Schramm or Hammerschmidt, alone or in combination, teach or suggest all of the elements recited in independent claims 1, 11, 20, 23, 26, and 31, and that these claims are in condition for allowance. Therefore, it is respectfully requested that the rejections of independent claims 1, 11, 20, 23, 26, and 31 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

Claims 2-10, 12-19, 21-22, 24-25, 27-30, and 32-37 depend from independent claims 1, 11, 20, 23, 26, and 31, respectively, and contain additional, patentable subject matter. For at least the reasons noted with respect to respective independent claims 1, 11, 20, 23, 26, and 31, dependent claims 2-10, 12-19, 21-22, 24-25, 27-30, and 32-37 are also in condition for allowance. In addition, any claim depending from a nonobvious independent claim is also nonobvious. *See* M.P.E.P. § 2143.03. It is therefore respectfully requested that the rejections of claims 2-10, 12-19, 21-22, 24-25, 27-30, and 32-37 under 35 U.S.C. § 103(a) also be reconsidered and withdrawn.

CONCLUSION

The undersigned respectfully urges that all of the pending claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone the undersigned at (210) 308-5677 to facilitate prosecution of this Application. If necessary, please charge any additional fees or deficiencies, or credit any overpayments to Deposit Account No. 19-0743.

Respectfully submitted,

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